

CCAC MSW Initiative

GHGs and SLCPs Accounting Tools for

Municipal Solid Waste (MSW) Initiative

Overview

- Introduction
- City assistance under MSWI
- Key questions

Introduction: Vision

Fostering partnerships, political will, and technical tools to enable cities to make **lasting actions to mitigate short lived climate pollutants** from the Municipal Solid Waste sector.

Introduction

- The CCAC MSW Initiative is working with the world's largest leading cities to undertake a variety of efforts to tackle the largest sources of emissions from waste, including capping and closing open dumps, capturing and utilizing landfill gas, and proper waste handling, organics management and recycling.
- A key starting point for these cities is **the identification of appropriate quantification tools to demonstrate the emission reductions from the above referenced actions.**

SLCPs

Although CO₂ is understood to be the major contributor to climate change, shorter-lived pollutants, with lifetimes of days to years, also play a significant role in the modification of climate. Reducing emissions of these Short-Lived Climate Pollutants (SLCPs) has become a matter of urgency, particularly for communities, ecosystems and regions most at risk from near-term climate impacts. Furthermore, several of the SLCPs have additional deleterious effects on human and environmental health. Luckily, there are existing, viable methods to reduce SLCPs, with the necessary regulatory and institutional mechanisms often already in place to facilitate abatement.

SLCPs from MSW

Table 1 Atmospheric lifetimes of SLCPs (source: UNEP (2011) Near-term Climate Protection and Clean Air Benefits: Actions for Controlling Short-Lived Climate Forcers)

Substance	Lifetime	Description / Source
Carbon dioxide	Decades to centuries and about 20 per cent will persist for many millennia	No single lifetime can be defined for carbon dioxide because of the different rates of uptake by different removal processes (IPCC: http://www.ipcc.ch/ipccreports/tar/wg1/016.htm)
Ozone	4 – 18 days	http://www.grida.no/climate/ipcc_tar/wg1/pdf/TAR-04.pdf
Methane	12 years	http://www.ipcc.ch/publications_and_data/ar4/wg1/en/errataserrata-errata.html#table214
Black carbon	3-8 days	The mean residence time in the atmosphere for black carbon varies regionally and with the season. The range given here is based on an international evaluation of 16 models (Shindell <i>et al.</i> 2008). However, black carbon may also continue to warm the atmosphere after being deposited on snow and ice.

MSW related SLCPs

MSWM activity	Methane*	Black carbon	HFCs
Landfill disposal	✓CH4 generated by methanogenic bacteria in landfills	✗	✓incidental release of HFCs from discarded products containing HFCs
Open burning	✗	✓ incomplete combustion of waste materials	✓incidental release of HFCs from discarded products containing HFCs
Waste collection	✗	✓ incomplete combustion of fuel in collection vehicles	✓incidental release of HFCs from discarded products containing HFCs
Composting	✓CH4 emitted from poorly managed aerobic systems	✗	✗
Anaerobic digestion	✓CH4 emitted from leaks in systems	✗	✗
Incineration	✗	✓incomplete combustion of waste materials (BC is a significant component of PM2.5)	✓incidental release of HFCs from discarded products containing HFCs

*methane is a major precursor to the formation of tropospheric ozone, therefore tropospheric ozone is not considered separately in the table.

City Assessments

Strategic Planning Tool for Urban Solid Waste Management

This tool will help you understand your city's waste current management practices and allow you to set targets for the future. The tool will guide you in collecting essential information about capacity and cost for your waste management facilities. It will also help you make projections for the future needs of the city's waste management system. Some of the calculations require additional work to generate the question asked within the tool, so worksheets are provided to assist with those calculations.

Name (s)	Jane Doe
Title	Environmental Engineer
Contact information	Tel: 123-456-789
City Name	My City
Country	My Country
Currency Name	My Local currency
Current year	2013
Important solid waste contacts in the city	Contacts
I want to assess:	Waste Quantities & System Capacity & Cost

WARNING
THIS AN INCOMPLETE
DRAFT FOR VIEWING
ONLY
DO NOT USE

Action Plans

Example: The following activities have been identified to solve the problem of SLCPs in Penang.

- Building Zero Waste Communities – Sg Nibong Tzu Chi Environment Education Center (TCEEC) Proposal
 - Food Waste, Bulk Waste & Green Waste Recovery at Ampang Jajar Transfer Station
 - Zero discharge system for pig farming area at Kg Valdor with conversion of pig waste into bio-gas, compost or algae cultivation or other identified sites
 - Food to Food - Sustainable Organic Waste Management to Agriculture Training Centre
- Identifying more other activities and projects for strategies and approaches for the implementation of the Penang's Organic Waste Policy (Penang State Government, MPPP, MPSP)

Work Plans

ACTIVITY 1: Best practices for waste management

ACTIVITY 2: Drafting “Organic Waste Management Plan for Penang”

ACTIVITY 3: Regional workshop on learning from Penang’s experiences for CCAC MSWI piloting on organic waste management

ACTIVITY 4: Output-based programme to incentivize solid waste separation

Stages for City Assistance

Stages	Key actors	SLCPs Accounting
Basic assessment leading to action plans	Implementer, local technical partners, government	Overview of major sources of SLCPs in waste sector
Piloting based on work plans	Implementer, local technical partners, government and major stakeholder in piloting	Benchmarking for piloting and assessment of outcome (piloting activity)
Scaling up	Local technical partners, government and major stakeholders	City wide benchmarking, monitoring and verification system
Discrete actions such as improved landfill management	Implementer, local technical partners, major stakeholders such landfill operators, and government	Benchmarking and monitoring and evaluation system such as for fugitive landfill emissions

Key Questions

- Quick calculator for city assessments?
- Tools for benchmarking
- Monitoring and verification system
- Holistic version versus discrete actions such as integrated solid waste management versus improving landfills